Flight Testing of Wireless Networking for Nanosat Launch Vehicles, Phase I

Completed Technology Project (2008 - 2008)

Project Introduction

The innovation proposed here addresses the testing and evaluation of wireless networking technologies for small launch vehicles by leveraging existing nanosat launch vehicle (NLV) development to create a dedicated wireless technologies testbed that can enter flight during Phase I. The Phase I research goal is to establish a technical readiness level (TRL) of 6 for internal vehicle wireless networking using ZIGBEE and/or its equivalent, particularly for sensor networks, stage-to-stage and vehicle-payload interfaces, as well as demonstrate vehicle-to-ground network communications using WIMAX. Subsequent Phase II research would focus on increasing the TRL to 7 by improving the performance of the test vehicle to expand the flight envelope while working with partners and suppliers to tailor their hardware to space applications. Such an aggressive Phase I work plan is possible due to our team's ongoing NLV R/R&D that is presently funded by the Air Force along with several civilian and commercial launch service customers. The long term goal of this initiative, which is characterized by extensive flight testing, is to provide a dedicated, domestic launch capability of 10 kg to low Earth orbit.

Primary U.S. Work Locations and Key Partners

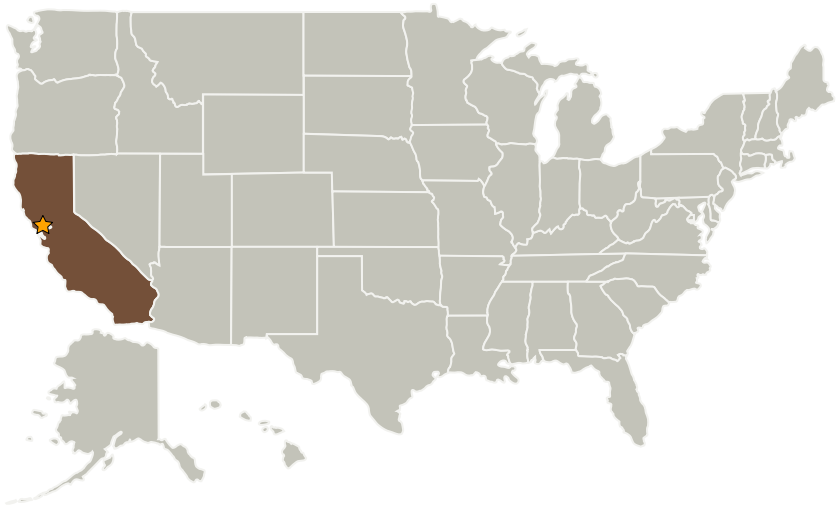

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Table of Contents

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Ames Research Center (ARC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Ames Research Center(ARC)	Lead Organization	NASA Center	Moffett Field, California
Garvey Spacecraft Corporation	Supporting Organization	Industry	Long Beach, California

Primary U.S. Work Locations
California

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Principal Investigator:

John M Garvey

Technology Areas

Primary:

- TX14 Thermal Management Systems
  - TX14.1 Cryogenic Systems
    - TX14.1.2 Launch Vehicle Propellant